ESI

EnviroSystems, Inc.
P.O. Box 778
Hampton, NH 03843-0778
603-926-3345

April 10, 2013

Ms. Sandra Perry
Triumvirate Environmental
61 Inner Belt Road
Somerville, Massachusetts 02143

Dear Ms. Perry:

Enclosed, please find one (1) copy of our report presenting the results of a toxicity test completed using an effluent sample collected from the Exxon Mobil Terminal located in Everett, Massachusetts during March 2013. Acute toxicity was evaluated using the marine species, *Americamysis bahia*.

Please do not hesitate to call me, Kirk Cram or Petra Karbe should you have any questions regarding the report.

Sincerely,

EnviroSystems, Incorporated

Kenneth A. Simon
President

Enclosure
WET Test Report Certification
Report Number 23160-13-03
One (1) copy + email

cc: Mr. Ernest Haynes - Exxon Mobil (1 copy)
Mr. Darrell Interess - Triumvirate Environmental (email only)

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION

Permittee Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: _____

_____

Authorized Signature

_____

Print or Type Name

ExxonMobil Oil Corporation

Print or Type the Permittee's Name

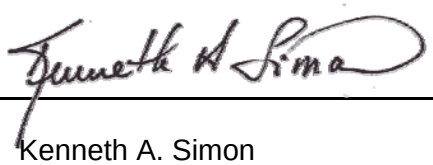
MA0000833

Type or Print the NPDES Permit No.

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: April 10, 2013



Kenneth A. Simon
President - EnviroSystems, Inc.

ESI

EnviroSystems, Inc.
P.O. Box 778
Hampton, NH 03843-0778
603-926-3345

April 10, 2013

Mr. Ernest Haynes
Exxon Mobil Oil Corporation
52 Beacham Street
Everett, Massachusetts 02149

Dear Mr. Haynes:

Enclosed, please find one (1) copy of our report presenting the results of a toxicity test completed using an effluent sample collected from the Exxon Mobil Terminal located in Everett, Massachusetts during March 2013. Acute toxicity was evaluated using the marine species, *Americamysis bahia*.

Please do not hesitate to call me, Kirk Cram or Petra Karbe should you have any questions regarding the report.

Sincerely,

EnviroSystems, Incorporated

Kenneth A. Simon
President

Enclosure
WET Test Report Certification
Report Number 23160-13-03
One (1) copy + email

cc: Ms. Sandra Perry - Triumvirate Environmental (1 copy)
Mr. Darrell Interess - Triumvirate Environmental (email only)

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION

Permittee Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: _____ _____

Authorized Signature

_____

Print or Type Name

ExxonMobil Oil Corporation

Print or Type the Permittee's Name

MA0000833

Type or Print the NPDES Permit No.

WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: April 10, 2013 _____

Kennth A. Simon
President - EnviroSystems, Inc.

TOXICOLOGICAL EVALUATION
OF A TREATED INDUSTRIAL EFFLUENT
BIOMONITORING SUPPORT FOR A NPDES PERMIT:
March 2013

Exxon Mobil Oil Corporation
Everett, Massachusetts
NPDES Permit Number MA0000833

Prepared For:

Exxon Mobil Oil Corporation
52 Beacham Street
Everett, Massachusetts 02149

Prepared By:

EnviroSystems, Incorporated
One Lafayette Road
Hampton, New Hampshire 03842

March 2013
Reference Number Exxon Mobil23160-13-03

STUDY NUMBER 23160

EXECUTIVE SUMMARY

The following summarizes the results of an acute exposure bioassay performed during March 2013 in support of the NPDES biomonitoring requirements of the Exxon Mobil terminal located in Everett, Massachusetts. An acute definitive assay was completed using the marine species, *Americamysis bahia*.

A. bahia were ≤5 days old at the start of the test. Dilution water, provided by ESI, was from the Hampton-Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Samples were received under chain of custody in good order. All sample receipt, test conditions and control endpoints were within protocol specifications except where otherwise noted. The results presented in this report relate only to the samples described on the chain(s) of custody and sample receipt log(s), and are intended to be used only by the submittor.

Results from the acute exposure assay and their relationship to permit limits are summarized in the following matrix.

Acute Toxicity Evaluation

Species	Exposure	LC-50	A-NOEC	Permit Limit (LC-50)	Effluent Meets Permit Limit	Assay Meets Protocol Limit
Americamysis bahia	48 Hours	>100%	100%	>50%	Yes	Yes

TOXICOLOGICAL EVALUATION
OF A TREATED INDUSTRIAL EFFLUENT
BIOMONITORING SUPPORT FOR A NPDES PERMIT:
March 2013

Exxon Mobil Oil Corporation
Everett, Massachusetts
NPDES Permit Number MA0000833

1.0 INTRODUCTION

This report presents the results of an acute toxicity test completed on an effluent sample collected from the Exxon Mobil terminal located in Everett, Massachusetts. The sample was provided by Triumvirate Environmental, Somerville, Massachusetts. Testing was based on programs and protocols developed by the US EPA (2002) with exceptions as noted by US EPA Region I (US EPA Region 1, 2012) and involved completing a 48 hour acute toxicity test with the marine species, *Americamysis bahia*. Testing was performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire in accordance with the provisions of TNI Standards (2009).

Acute toxicity tests involve preparing a series of concentrations by diluting effluent with control water. Groups of test animals are exposed to each effluent concentration and a control for a specified period. In acute tests, mortality data for each concentration are used to calculate (by regression) the median lethal concentration, or LC-50, defined as the effluent concentration which kills half of the test animals. Samples with high LC-50 values are less likely to cause significant environmental impacts. The acute no observed effect concentration (A-NOEC) provides information on the effluent concentration having minimal acute effects in the environment and is defined as the highest tested effluent concentration that causes no significant mortality.

2.0 MATERIALS AND METHODS

2.1 General Methods

Toxicological and analytical protocols used in this program follow procedures primarily designed by the EPA to provide standard approaches for the evaluation of toxicological effects of discharges on aquatic organisms, and for the analysis of water samples. See Section 4.0 for a list of references.

2.2 Test Species

When necessary, *A. bahia* were acclimated to approximate test conditions prior to use in the assay and then transferred to test chambers using a large bore glass pipet, minimizing the amount of water added to test solutions.

2.3 Effluent and Laboratory Water

Effluent collection information is provided in Table 1. Samples were stored at 4°C and warmed to 25±1°C prior to preparing test solutions. Effluent used in the *A. bahia* assay was salinity adjusted to 25±2 ppt using artificial sea salts according to protocol (EPA 2002). Laboratory water was collected from the Hampton/Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Total residual chlorine (TRC) was measured by amperometric titration (MDL 0.02 mg/L) in the effluent sample. Samples with ≥0.02 mg/L TRC were dechlorinated using sodium thiosulfate (EPA 2002).

2.4 Acute Toxicity Tests

Test concentrations for the assay were 100%, 50%, 25%, 12.5%, and 6.25% effluent. The 48 hour toxicity tests were conducted at 25±1°C with a photoperiod of 16:8 hours light:dark. Test chambers for the acute assays were 250 mL glass beakers containing 200 mL test solution in each of 4 replicates with 10 organisms/replicate. Survival and dissolved oxygen were measured daily in all replicates. Temperature,

salinity pH and specific conductivity were measured daily in one replicate of each test treatment.

2.5 Data Analysis

Data analysis involved, as required, determination of LC-50 values using CETIS™ v1.8.6.3, Comprehensive Environmental Toxicity Information System, software. The program computes LC-50 values using the Spearman-Karber and Linear Regress (Probit) methods following protocol guidelines. If survival in the highest test concentration was >50%, LC-50 values were obtained by direct observation of the raw data. The A-NOEC was determined as the highest test concentration which caused no significant mortality.

2.6 Quality Control

As part of the laboratory quality control program, standard reference toxicant assays are completed on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. See Table 2 for details.

3.0 RESULTS AND DISCUSSION

Results of the acute exposure bioassay completed using *A. bahia* are summarized in Table 3. Effluent and dilution water characteristics are presented in Table 4. Toxicity test summary sheets are included after the tables. Support data, including copies of laboratory bench sheets, are included in Appendix A.

Minimum test acceptability criteria require ≥90% survival in the control concentrations. Achievement of these results indicate that healthy test organisms were used and that the dilution water had no significant adverse impact on the outcome of the assay. See the Executive Summary and Table 3 for test acceptability.

4.0 LITERATURE CITED

APHA. 2012. *Standard Methods for the Examination of Water and Wastewater*, 22nd Edition. Washington D.C.

The NELAC Institute (TNI). 2009. *Environmental Laboratory Sector, Volume 1: Management and Technical Requirements for Laboratories Performing Environmental Analysis (TNI Standard)*. EL-V1-2009.

US EPA. 2002. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*. Fifth Edition. EPA-821-R-02-012.

US EPA Region I. 2012. *Marine Acute Toxicity Test Procedure and Protocol*. US EPA Region I Office, Boston, Massachusetts. July 2012.

TABLE 1. Summary of Sample Collection Information.
Exxon Mobil Terminal Effluent Evaluation. March 2013.

Sample Description	Type	Collection Date	Collection Time	Receipt Date	Receipt Time	Arrival Temp °C
Outfall 01C*	Grab	03/29/13	1115	03/29/13	1210	5

COMMENTS:
* Two additional effluent samples were collected and held until further notice.

TABLE 2. Summary of Reference Toxicant Data.
Exxon Mobil Terminal Effluent Evaluation. March 2013.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
A. bahia						
03/26/13	Survival	LC-50 - 48 Hr	24.9	21.6	17.4 - 25.8	SDS (mg/L)

Means and Acceptable Ranges based on the most recent 20 reference toxicant assays

TABLE 3. Summary of Acute Evaluation Results.
Exxon Mobil Terminal Effluent Evaluation. March 2013.

Survival

Species	Exposure	Lab	6.25%	12.5%	25%	50%	100%
A. bahia	48 hours	100%	92.5%	90%	100%	100%	100%

LC-50 Computation Technique

Species	Exposure	Spearman-Karber	Probit	Linear Interpolation	A-NOEC
A. bahia	48 Hours	NC	NC	NC	100%

COMMENTS:
NC - LC-50 could not be computed for this data set by this method.

TABLE 4. Summary of Effluent and Diluent Characteristics. Exxon Mobil Terminal Effluent Evaluation. March 2013.

PARAMETER	UNITS	EFFLUENT	LABORATORY WATER
pH - As Received	SU	7.28	8.09
pH- Salinity Adjusted	SU	7.74	-
Salinity - As Received	ppt	<1	25
Salinity - Salinity Adjusted	ppt	25	-
TRC	mg/L	<0.02	<0.02
Total Solids	mg/L	730	27000
Total Suspended Solids	mg/L	1	30
Ammonia	mg/L as N	<0.1	<0.1
Total Organic Carbon	mg/L as C	4.4	<2
Aluminum, total	mg/L	0.061	-
Cadmium, total	mg/L	<0.0005	-
Copper, total	mg/L	<0.002	-
Lead, total	mg/L	0.002	-
Nickel, total	mg/L	<0.002	-
Zinc, total	mg/L	0.023	-

Additional water quality and analytical chemistry support data are available in Appendix A.

TOXICITY TEST SUMMARY SHEET

FACILITY NAME: Exxon Mobil Everett Terminal
NPDES PERMIT NO.: MA0000833
TEST START DATE: 03/29/13
TEST END DATE: 03/31/13

TEST TYPE	TEST SPECIES	SAMPLE TYPE	SAMPLE METHOD
X Acute	___ *Pimephales promelas*	___ Prechlorinated	X Grab
___ Chronic	___ *Ceriodaphnia dubia*	___ Dechlorinated	___ Composite
___ Modified Chronic (Reporting Acute Values)	___ *Daphnia pulex*	___ Chlorine Spiked in Lab	___ Flow-thru
	X *Americamysis bahia*	___ Chlorinated on Site	___ Other
___ 24 Hour Screen	___ *Cyprinodon variegatus*	___ Unchlorinated	
	___ *Menidia beryllina*	X No Detectable Chlorine Upon Receipt	
	___ *Arbacia punctulata*		
	___ *Champia parvula*		
	___ *Selenastrum capricornutum*		

DILUTION WATER:

___ Receiving water collected at a point upstream or away from the discharge, free from toxicity or other sources of contamination; Receiving Water Name: Island End River (Mystic River Watershed)

X Alternate surface water of known quality and hardness, to generally reflect the characteristics of the receiving water; Receiving Water Name: Hampton Estuary

___ Synthetic water prepared using either Millipore Milli-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water.

___ Artificial sea salts mixed with deionized water

___ Deionized water and hypersaline brine

___ Other

EFFLUENT SAMPLING DATES: 03/29/13 _____ _____ _____

EFFLUENT CONCENTRATIONS TESTED (%): 6.25%, 12.5%, 25%, 50%, 100%

Permit Limit Concentration: >50 %

Was the effluent salinity adjusted? Yes If "yes", to what level? 25 ppt

REFERENCE TOXICANT TEST DATE: 03/26/13 LC-50: 24.9 mg/L Sodium Dodecyl Sulfate

PERMIT LIMITS AND TEST RESULTS

Test Acceptability Criteria

Mean Control Survival: 100%

LIMITS		**RESULTS**	
LC-50:	>50 %	LC-50	>100%
		Upper Limit:	-
A-NOEC:	____ %	Lower Limit:	-
		Method:	Direct observation
C-NOEC:	____ %	A-NOEC	100%
		C-NOEC	-
IC- ___	____ %	IC- ____	-

APPENDIX A

DATA SHEETS

STATISTICAL SUPPORT

Contents	Number of Pages
Methods Used in NPDES Permit Biomonitoring Testing	1
A. bahia Acute Bioassay Bench Sheet	2
A. bahia LC-50 Analysis and Survival Statistics	0
A. bahia Organism Culture Sheet	1
Preparation of Dilutions and Record of Meters Used	1
Analytical Chemistry Data Report	1
Sample Receipt Record	1
Chain of Custody	1
Assay Review Checklist	1
Total Appendix Pages	9

METHODS USED IN NPDES PERMIT BIOMONITORING TESTING

Parameter	Method
Acute Exposure Bioassays:	
Ceriodaphnia dubia	EPA-821-R-02-012 2002.0
Daphnia pulex	EPA-821-R-02-012 2021.0
Pimephales promelas	EPA-821-R-02-012 2000.0
Americamysis bahia	EPA-821-R-02-012 2007.0
Menidia beryllina	EPA-821-R-02-012 2006.0
Cyprinodon variegatus	EPA-821-R-02-012 2004.0
Chronic Exposure Bioassays:	
Ceriodaphnia dubia	EPA-821-R-02-013 1002.0
Pimephales promelas	EPA-821-R-02-013 1000.0
Cyprinodon variegatus	EPA-821-R-02-014 1004.0
Menidia beryllina	EPA-821-R-02-014 1006.0
Arbacia punctulata	EPA-821-R-02-014 1008.0
Champia parvula	EPA-821-R-02-014 1009.0
Trace Metals:	
Trace Metals	EPA 200.8/SW 6020, EPA 245.7
Hardness	Standard Methods 22nd Edition - Method 2340 B
Wet Chemistries:	
Alkalinity	EPA 310.2
Chlorine, Residual	Standard Methods 22nd Edition - Method 4500-Cl D
Total Organic Carbon	Standard Methods 22nd Edition - Method 5310 C
Specific Conductance	Standard Methods 22nd Edition - Method 2510 B
Nitrogen - Ammonia	Standard Methods 22nd Edition - Method 4500-NH_3 G
pH	Standard Methods 22nd Edition - Method 4500-H+ B
Solids, Total (TS)	Standard Methods 22nd Edition - Method 2540 B
Solids, Total Dissolved (TDS)	Standard Methods 22nd Edition - Method 2540 C
Solids, Total Suspended (TSS)	Standard Methods 22nd Edition - Method 2540 D
Dissolved Oxygen	Standard Methods 22nd Edition - Method 4500-O G

Please visit our web site at www.envirosystems.com for a copy of our DoD ELAP Accreditation, NH NELAP Accreditation and Massachusetts State Certification.

ACUTE BIOASSAY DATA SUMMARY

STUDY: 23160	Brine Shrimp: A- 3090	
CLIENT: Exxon Mobil	TEST ORGANISM: *A. bahia*	
SAMPLE: Terminal Effluent	ORGANISM SUPPLIER / BATCH / AGE: *See Organism Culture Sheet*	
DILUENT: Lab Salt		

"AS RECEIVED" EFFLUENT AND DILUENT CHEMISTRIES

	T. Metals	TOC	AMM	TS/TSS	pH	S/C	SALINITY	TRC
EFF	-002	-003	-004	-005	7.28	1318	0.7	<0.02
DIL		014	015	016	8.09	38360	25	<0.02

SALINITY ADJUSTMENT RECORD : 4,000 ML EFFLUENT + 112 G SEA SALTS (A- 3377) = 100% ACTUAL PERCENTAGE

CONC	REP	SURVIVAL 0	24	48	DO (mg/L) 0	24	48	pH (SU) 0	24	48	TEMP (°C) 0	24	48	S/C (µmhos/cm) 0	24	48	SALINITY (ppt) 0 (RQH)	24	48 (Jm 3/31)
LAB	A	10	10	10	7.9	6.8	7.7	8.09	7.87	7.91	23	23	23	38360	38760	39320	~~24~~ 25	25	~~23~~ 25
	B	10	10	10	7.9	6.7	7.4												
	C	10	10	10	7.9	6.6	7.0												
	D	10	10	10	7.9	6.7	7.5												
6.25%	A	10	9	9	7.9	6.7	5.7	8.09	7.67	7.71	23	23	23	38830	39820	40640	25	25	26
	B	10	9	9	7.9	4.5	6.3												
	C	10	9	9	7.9	5.1	6.1												
	D	10	10	10	7.9	6.1	6.4												
12.5%	A	10	8	8	8.0	6.1	6.2	8.04	7.81	7.85	23	23	23	~~39890~~ 38980	39940	41050	25	26	26
	B	10	10	9	8.0	5.5	5.9												
	C	10	10	9	8.0	4.9	5.8												
	D	10	10	10	8.0	5.9	6.1												
25%	A	10	10	10	7.9	5.8	5.7	7.97	7.87	7.94	24	23	23	38980	40160	41270	25	26	26
	B	10	10	10	7.9	5.8	5.9												
	C	10	10	10	7.9	5.9	6.5												
	D	10	10	10	7.9	5.8	6.4												
DATE		3/29/13	3/30	3/31	3/29/13	3/30	3/31												
TIME		1540	1340	1340	1530	1145	1040												
INITIALS		CS	VB	JM	RQH	VB	JM												

ACUTE BIOASSAY DATA SUMMARY

STUDY: 23160		
CLIENT: Exxon Mobil	**TEST ORGANISM:** *A. bahia*	
SAMPLE: Terminal Effluent	**ORGANISM SUPPLIER / BATCH / AGE:** *See Organism Culture Sheet*	
DILUENT: Lab Salt (EH) CS 3/29		

50%	A10	~~7.9~~	10	10	7.9	5.8	6.5	7.88	7.96	8.10	24	23	23	39160	40290	41180	25	26	26
	B10	~~7.9~~	10	10	7.9	5.9	6.4												
	C10	~~7.9~~	10	10	7.9	5.9	6.4												
	D10	~~7.9~~	10	10	7.9	6.1	6.0												
100%	A10	~~7.9~~	10	10	7.9	5.1	6.2	7.74	8.00	8.15	25	23	23	39620	40550	41690	25	26	27
	B10	~~7.9~~	10	10	7.9	5.8	6.4												
	C10	~~7.9~~	10	10	7.9	6.0	6.5												
	D10	~~7.9~~	10	10	7.9	6.6	6.3												
DATE	3/29	~~3/29/13~~	3/30	3/31 (JM)	3/29/13	3/30	3/31												
TIME	1540	~~1530~~	1340	1340	1530	1145	1040												
INITIALS	CS	~~RQH~~	UB	JM	RQH	UB	JM												

02A6bAR0032410

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species: Americamysis bahia

Source: Lab reared ✓ Hatchery reared ____ Field collected ____

Hatch date: 3-27-13 Receipt date: ____

Lot number: 032713MS Strain: ____

Brood origination: Florida

II. Water Quality

Temperature 25 °C Salinity ≈27 ppt D.O. — ppm

pH 7.8 su Hardness — ppm Alkalinity — ppm

III. Culture Conditions

Freshwater ____ Saltwater ✓ Other ____

Recirculating ✓ Flow through ____ Static renewal ____

DIET: Flake food ✓ Phytoplankton ____ Trout chow ____

Artemia ✓ Rotifers ____ YCT ____ Other Encap. Shrimp Diet

Prophylactic treatments: ____

Comments: ____

IV. Shipping Information

Client: ESI # of Organisms 320+

Carrier: ____ Date shipped 3-29-13

Biologist: Mark [signature]

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

RECORD OF METERS USED

STUDY: 23160	CLIENT: Exxon Mobil		
	Exposure (Hours)		
	0	24	48
Water Quality Station #	2	2	1
Initials / Date	RW 3/29/13	UB 3/30	JM 3/31

Water Quality Station #1		Water Quality Station #2		COMMENTS
DO meter #	24	DO meter #	23	
DO probe #	92	DO probe #	89	
pH meter #	1097	pH meter #	1170	
pH probe #	111	pH probe #	110	
S/C meter #	YSI30E	S/C meter #	YSI30E	
S/C probe #	↓	S/C probe #	YSI30E	
Salinity meter #	↓	Salinity meter #	YSI30E	

PREPARATION OF DILUTIONS

Diluent: Lab Salt	Day: 0 Sample: EO	
Concentration %	Vol. Eff.(mls)	Final Vol.(mls)
Lab	0	800
RW	0	↓
6.25%	50	
12.5%	100	
25%	200	
50%	400	
100%	800	✓
INITIALS:	CS	
TIME:	1505	
DATE:	3/29/1	

Report No: 23160 SDG:
Project: Exxon Mobil

Sample ID: Effluent Start
Matrix: Water
Sampled: 03/29/13 1115

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total solids	23160-005	730	10	mg/L	04/01/13 1500	04/02/13 1250	JTP/SM2540B
Total suspended solids	23160-005	1	1	mg/L	04/02/13 0825	04/02/13 1240	JTP/SM 2540D
Total organic carbon	23160-003	4.4	0.4	mg/L	04/01/13	04/01/13	BC /SM 5310 C
Ammonia-N	23160-004	ND	0.1	mg/L as N	04/09/13 1248	04/09/13 1248	JLH/SM 4500-NH3 G
Aluminum, total	23160-002	0.061	0.02	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Cadmium, total	23160-002	ND	0.0005	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Calcium, total	23160-002	62	0.05	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Chromium, total	23160-002	ND	0.002	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Copper, total	23160-002	ND	0.002	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Lead, total	23160-002	0.002	0.0005	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Magnesium, total	23160-002	7.6	0.05	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Nickel, total	23160-002	ND	0.002	mg/L	04/02/13	04/04/13	JLH/EPA 200.8
Zinc, total	23160-002	0.023	0.002	mg/L	04/02/13	04/04/13	JLH/EPA 200.8

Report No: 23084 SDG:
Project: ESI

Sample ID: 25ppt Lab Salt 03/29/13
Matrix: Water
Sampled: 03/29/13 1600

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total solids	23084-016	27000	100	mg/L	04/01/13 1500	04/02/13 1250	JTP/SM2540B
Total suspended solids	23084-016	30	5	mg/L	04/02/13 0825	04/02/13 1240	JTP/SM 2540D
Total organic carbon	23084-014	ND	2	mg/L	04/01/13	04/01/13	BC /SM 5310 C
Ammonia-N	23084-015	ND	0.1	mg/L as N	04/09/13 1312	04/09/13 1312	JLH/SM 4500-NH3 G

Notes:

ND = Not Detected

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	23160		
SDG No:			
Project:	Exxon Mobil		
Delivered via:	ESI		
Date and Time Received:	03/29/13 1210	Date and TIme Logged into Lab:	08/21/09 1445
Recieved By:	DW	Logged into Lab by:	CS CS
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	A1008814		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
Effluent Start	23160-001	W	AB48AD StartSample	2x3750 P	4 C	Yes
Effluent Start	23160-002	W	Total Metals Cd,Cr,Ni,Pb,Cu,Zn,Al,Ca,Mg;	250 P	HNO3	Yes
Effluent Start	23160-003	W	TOC	1x40 G	H2SO4	Yes
Effluent Start	23160-004	W	NH3;	125 P	H2SO4	Yes
Effluent Start	23160-005	W	TS,TSS	1x1000 P	4 C	Yes
Effluent Start	23160-006	W	TS,TSS Hold	1x1000 P	4 C	Yes
Effluent Start	23160-007	W	TS,TSS Hold	1x1000 P	4 C	Yes

Notes and qualifications:

ESI

EnviroSystems, Inc.
1 Lafayette Road
Hampton, NH 03842

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: ~~23106~~ 23160 (1) 3/29

CHAIN OF CUSTODY DOCUMENTATION

Client: Triumvirate Environmental/Exxon Mobi	Contact: Ernest Haynes & Sandra Perry	Project Name: Exxon Mobil	
Report to: Ernest Haynes & Sandra Perry	Address: 61 Inner Belt Rd.	Project Number: P0335	Task: 0001
Invoice to: Sandra Perry	Address: Somerville, MA 02143	Project Manager: Ernest Haynes & Sandra Perry	
Voice: 617-715-8947	Fax: NA	email: vsreng@triumvirate.com	ERR

Protocol: NPDES

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composite (G/C)	Container No	Container Size (mL)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	Effluent Start	3-29-13	11:15	FMR		2	3750	P	4 C	Water	N	AB48AD StartSample
002	Effluent Start					1	250	P	HNO3	Water	N	Total Metals Cd,Cr,Ni,Pb,Cu,Zn,Al,Ca,Mg;
003	Effluent Start					1	40	G	H2SO4	Water	N	TOC
004	Effluent Start					1	125	P	H2SO4	Water	N	NH3;
005	Effluent Start					1	1000	P	4 C	Water	N	TS,TSS
006	Effluent Start #2					1	1000	P	4C	Water	N	TS, TSS Hold
007	Effluent Start #3					1	1000	P	4C	Water	N	TS, TSS Hold

Relinquished By: [signature] Date: 3-29-13 Time: 1220 Received By: [signature] Date: 3-29-13 Time: 12:10

Relinquished By: Date: Time: Received at Lab By: Date: Time:

Comments: 5°C

ERR

COC Number: A1008814

Sample Delivery Group No: March 2013 Page of

Assay Review Checklist

DATE IN: 3/29/13 **STUDY#:** 23160

DATE DUE: 4/15/13 **CLIENT:** Exxon Mobil

PROJECT:

ASSAY:

Project Paperwork Check for Completeness			
	Date	**Initials**	**Comments**
Day 0	3/29/13	CS	
Day 1	3/30/13	LC (VC)	
Day 2	3/31/13	JM	
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			
Day 8			

Analyst Data Review	**Date**	**Initials**	**Comments**
Chains of Custody Complete	4/1	JM	
Sample Receipt Complete	4/1	JM	
Organism Culture Sheet(s)	4/1	JM	
Bench Sheets Complete (dates, times, initials, etc...)	4/1	JM	
Water Quality Data Complete	4/1	JM	
TRC Values & Bottle Numbers	4/1	JM	
Daphnid Calculations Complete	NA	NA	
Weights Reported	NA	NA	
Assay Acceptability Review	4/1	JM	

Technical Report Review	**Date**	**Initials**	**Comments**
Statistical Analysis Complete	NA		
Statistical Analysis Reviewed	NA		
Data Acceptability Review	4/3/13	NR	
Supporting Chemistry Report	4/10/13	✓	
Draft Report (E3) 4/10/13 NR 4/4/13 → ~~4/10/13~~		✓ NR	
QA Audit/Review Complete			
Final Report Reviewed	4/10/13	KC (NR)	
Final Report Printed - PDF	4/10/13	NR	
Executive Summary / Chems Sent			
Report E-mailed / Faxed	4/10/13	NR	
Report Logged Out / Invoice Sent	↓	↓	
Report Scanned to Archive	↓	↓	

P:\GENERAL PROJECTS\FORMS\LABFORMS\$ Assay Review Checklist.wpd